

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Canceled)

2. (Previously Presented) A retry communication control method for a packet communication system that includes a plurality of packet transfer apparatuses each connected to a network and to at least one terminal apparatus and is capable of exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, comprising:

 sending packets of a trial class for a predetermined period from a caller terminal apparatus;

 estimating whether or not the communication quality of the packets is sufficient; if it is sufficient, sending packets of a priority class thereafter; if it is insufficient, stopping to send packets of the trial class for a second predetermined period;

 after the second predetermined period, estimating according to a communication quality level of the preceding trial-class packets whether or not it is possible to send packets of the trial class; and

 if it is possible, again sending packets of the trial class for the predetermined period from the caller terminal apparatus.

3. (Currently Amended) A retry communication control method for a packet communication system that includes a plurality of packet transfer apparatuses each connected to a network and to at least one terminal apparatus and is capable of exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, comprising:

sending packets of a trial class for a predetermined period from a caller terminal apparatus;

estimating whether or not the communication quality of the packets is sufficient;

if it is sufficient, sending packets of a priority class thereafter;

if it is insufficient, stopping to send packets of the trial class for a second predetermined period;

after the second predetermined period, estimating whether or not it is possible to send packets of the trial class according to an execution probability (max/total, where “total” represents the number of packet transfer apparatuses trying to send packets of the trial class within a certain time unit, and “max” represents the maximum number of packet transfer apparatuses trying to send packets of the trial class within the certain time unit and allowed to successfully transfer the packets of the trial class without deteriorating a communication quality) estimated from a communication quality of the preceding trial-class packets; and

if it is possible, again sending packets of the trial class for the predetermined period from the caller terminal apparatus.

4. (Previously Presented) A retry communication control method for a packet communication system that includes a plurality of packet transfer apparatuses each connected to a network and to at least one terminal apparatus and is capable of exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, comprising:

starting to send packets of a trial class from a caller terminal apparatus;

estimating from time to time whether or not the communication quality of the packets is sufficient;

if it is sufficient and if the sufficient state continues for a predetermined period, sending packets of a priority class;

if it becomes insufficient, immediately stopping to send packets of the trial class and continuously stopping to send packets of the trial class for a second predetermined period;

after the second predetermined period, estimating whether or not it is possible to send packets of the trial class; and

if it is possible, again sending packets of the trial class from the caller terminal apparatus.

5. -9. (Canceled)

10. (Previously Presented) A retry communication control system including a plurality of packet transfer apparatuses each connected to a network and to at least one terminal apparatus, packets of a trial class being sent from one terminal apparatus to another to determine, according to the communication quality of the sent packets, whether or not it is possible to send packets of a priority class, comprising:

means for sending packets of the trial class for a predetermined period;

means for estimating whether or not the communication quality of the packets is sufficient;

means for sending, if it is sufficient, packets of the priority class thereafter;

means for stopping, if it is insufficient, to send packets of the trial class for a second predetermined period;

means for estimating, after the second predetermined period, according to a communication quality level of the preceding trial-class packets whether or not it is possible to send packets of the trial class; and

means for again sending, if it is possible, packets of the trial class for the predetermined period from a caller terminal apparatus.

11. (Previously Presented) The retry communication control system of claim 10, wherein each of the terminal apparatuses has each of the means.

12. (Previously Presented) The retry communication control system of claim 10, wherein each of the packet transfer apparatuses has each of the means.

13. (Original) The retry communication control system of claim 10, further comprising:

a call control apparatus to start charging a caller terminal apparatus for a fee when the transfer of packets of the priority class is started.

14. (Currently Amended) A retry communication control system including a plurality of packet transfer apparatuses each connected to a network and to at least one terminal apparatus, packets of a trial class being sent from one terminal apparatus to another to determine, according to the communication quality of the sent packets, whether or not it is possible to send packets of a priority class, comprising:

means for sending packets of the trial class for a predetermined period;

means for estimating whether or not the communication quality of the packets is sufficient;

means for sending, if it is sufficient, packets of the priority class thereafter;

means for stopping, if it is insufficient, to send packets of the trial class for a second predetermined period;

means for estimating, after the second predetermined period, whether or not it is possible to send packets of the trial class according to an execution probability (max/total, where “total” represents the number of packet transfer apparatuses trying to send packets of the trial class within a certain time unit, and “max” represents the maximum number of packet transfer apparatuses trying to send packets of the trial class within the certain time

unit and allowed to successfully transfer the packets of the trial class without deteriorating a communication quality) estimated from a communication quality of the preceding trial-class packets; and

means for again sending, if it is possible, packets of the trial class for the predetermined period from a caller terminal apparatus.

15. (Previously Presented) The retry communication control system of claim 14, wherein each of the terminal apparatuses has each of the means.

16. (Previously Presented) The retry communication control system of claim 14, wherein each of the packet transfer apparatuses has each of the means.

17. (Original) The retry communication control system of claim 14, further comprising:

a call control apparatus to start charging a caller terminal apparatus for a fee when the transfer of packets of the priority class is started.

18. (Previously Presented) A retry communication control system including a plurality of packet transfer apparatuses each connected to a network and to at least one terminal apparatus, packets of a trial class being sent from one terminal apparatus to another to determine, according to the communication quality of the sent packets, whether or not it is possible to send packets of a priority class, comprising:

means for starting to send packets of the trial class;

means for estimating from time to time whether or not the communication quality of the packets is sufficient;

means for sending, if the communication quality is sufficient and if the sufficient state continues for a predetermined period, packets of the priority class;

means for immediately stopping, if the communication quality becomes insufficient, to send packets of the trial class and continuously stopping to send packets of the trial class for a second predetermined period;

means for estimating, after the second predetermined period, whether or not it is possible to send packets of the trial class; and

means for again sending, if it is possible, packets of the trial class from a caller terminal apparatus.

19. (Previously Presented) The retry communication control system of claim 18, wherein each of the terminal apparatuses has each of the means.

20. (Previously Presented) The retry communication control system of claim 18, wherein each of the packet transfer apparatuses has each of the means.

21. (Original) The retry communication control system of claim 18, further comprising:

a call control apparatus to start charging a caller terminal apparatus for a fee when the transfer of packets of the priority class is started.

22. - 25. (Canceled)

26. (Currently Amended) The packet transfer possibility determination method of claim [[23]] 81, comprising:

transferring packets in communication-band-variable flows, and if a total flow rate exceeds the trial-class band capacity due to a communication band expansion, discarding packets of the trial class.

27. (Currently Amended) The packet transfer possibility determination method of claim 26, ~~comprising~~:

~~presetting a priority class band capacity not to discard packets of the priority class;~~
and

wherein if a total flow rate exceeds the priority-class band capacity due to a communication band expansion, discarding packets of the priority class.

28. (Currently Amended) The packet transfer possibility determination method of claim [[23]] 81, wherein the terminal apparatus makes a request of transmitting packets of the trial class, and according to a resultant transmission quality, makes a request of transmitting packets of the priority class or again of the trial class.

29. - 31. (Canceled)

32. (Currently Amended) The packet transfer apparatus of claim [[29]] 82, wherein packets are transferred in communication-band-variable flows, and if a total flow rate exceeds the trial-class band capacity due to a communication band expansion, the flow-rate monitor part discards packets of the trial class.

33. (Currently Amended) The packet transfer apparatus of claim 32, wherein:
~~the storage part prestores also a priority class band capacity not to discard packets of the priority class; and~~

if a total flow rate exceeds the priority-class band capacity due to a communication band expansion, the flow-rate monitor part discards packets of the priority class.

34.- 47. (Canceled)

48. (Currently Amended) A packet transfer apparatus for transferring a packet at a priority level corresponding to a type of service of the packet, comprising:

a class transition monitor part to receive monitor information that includes information to identify packets exchanged in connection with a call and information that is used to determine whether or not the packets exchanged in connection with the call conform to [[the]] contract information and at least includes an identifier representative of a priority-level-transition pattern, estimate, according to the identifier, a priority level transition of packets from the terminal apparatus concerning the call, and determine whether or not the type of service related to the priority level of each packet conforms to the contract information;

a packet discard part to discard the packet if it is determined that the type of service does not conform to the contract information; and

a packet rewrite part to rewrite the type of service into that conforming to the contract information if it is determined that the type of service does not conform to the contract information.

49. (Currently Amended) A packet transfer apparatus for transferring a packet at a priority level corresponding to a type of service of the packet, comprising:

a packet-flow-rate monitor part having a preset threshold value for a minimum flow rate of packets, to monitor, upon receiving monitor information that includes information to identify packets exchanged in connection with a call and information to determine whether or not the packets exchanged in connection with the call conform to contract information, whether or not a flow rate of packets sent from terminal apparatuses concerning the call is below the threshold value; and

a packet discard part to discard packets of which a flow rate is below the threshold value.

50. – 72. (Canceled)

73. (Previously Presented) A packet transfer apparatus comprising:
a packet transfer part to transfer a packet at a priority level from a caller terminal apparatus to a destination terminal apparatus; and
a packet rewrite part to rewrite, upon receiving a notification of addresses of terminal apparatuses that exchange packets to be monitored, a destination address of a packet whose originator address is in the notified addresses into an address of a monitor apparatus.

74. (Previously Presented) A packet transfer apparatus comprising:
a packet transfer part to transfer a packet at a priority level from a caller terminal apparatus to a destination terminal apparatus; and
a label rewrite part to set, upon receiving a notification of addresses of terminal apparatuses that exchange packets to be monitored, an LSP label for passing through a monitor apparatus as an MPLS label of a packet to be sent from a terminal apparatus whose address is in the notified addresses to a destination terminal apparatus.

75. (Canceled)

76. (Previously Presented) The retry communication control method of claim 2, wherein the caller terminal apparatus is charged for a fee from the time when starting to transfer packets of the priority class.

77. (Previously Presented) The retry communication control method of claim 3, wherein the caller terminal apparatus is charged for a fee from the time when starting to transfer packets of the priority class.

78. (Previously Presented) The retry communication control method of claim 4, wherein the caller terminal apparatus is charged for a fee from the time when starting to transfer packets of the priority class.

79. - 80. (Cancelled).

81. (New) A packet communication method used in a packet communication system including:

a first terminal apparatus that sends packets of a trial class or a priority class;
a second terminal apparatus that receives packets of the trial class or the priority class;
a first packet transfer apparatus that is connected to the first terminal apparatus and first ends of plural circuits and transfers packets of the trial class or the priority class from the first terminal apparatus to at least one of the plural circuits;
a second packet transfer apparatus that is connected to the second terminal apparatus and second ends of the plural circuits and transfers packets of the trial class or the priority class from the at least one of the plural circuits to the second terminal apparatus;
a storage part that prestores a trial-class band capacity not to discard packets of the trial class and a priority-class band capacity not to discard packets of the priority class; and
a flow-rate monitor part that monitors a total flow rate of packets of the trial class and packets of the priority class in each of the plural circuits,
the packet communication method comprising:
in a case where the at least one of the plural circuits has failed and a flow of packets of the priority class in the failed at least one of the plural circuits is switched to at least one of circuits other than the failed at least one of the plural circuits,
transferring packets of the priority class through the at least one of circuits other than the failed at least one of the plural circuits, without estimating whether or not the communication quality of packets of the trial class is sufficient in the at least one of circuits

other than the failed at least one of the plural circuits, using the first packet transfer apparatus;

discarding packets of the priority class if a total flow rate of packets of the trial class and packets of the priority class exceeds the priority-class band capacity in the at least one of circuits other than the failed at least one of the plural circuits, using the flow-rate monitor part; and

discarding packets of the trial class if a total flow rate of packets of the trial class and packets of the priority class exceeds the trial-class band capacity in the at least one of circuits other than the failed at least one of the plural circuits, using the flow-rate monitor part.

82. (New) A packet communication system comprising:

a first terminal apparatus that sends packets of a trial class or a priority class;

a second terminal apparatus that receives packets of the trial class or the priority class;

a first packet transfer apparatus that is connected to the first terminal apparatus and first ends of plural circuits and transfers packets of the trial class or the priority class from the first terminal apparatus to at least one of the plural circuits;

a second packet transfer apparatus that is connected to the second terminal apparatus and second ends of the plural circuits and transfers packets of the trial class or the priority class from the at least one of the plural circuits to the second terminal apparatus;

a storage part that prestores a trial-class band capacity not to discard packets of the trial class and a priority-class band capacity not to discard packets of the priority class; and

a flow-rate monitor part that monitors a total flow rate of packets of the trial class and packets of the priority class in each of the plural circuits,

wherein in a case where the at least one of the plural circuits has failed and a flow of packets of the priority class in the failed at least one of the plural circuits is switched to at least one of circuits other than the failed at least one of the plural circuits,

the first packet transfer apparatus transfers packets of the priority class through the at least one of circuits other than the failed at least one of the plural circuits, without estimating whether or not the communication quality of packets of the trial class is sufficient in the at least one of circuits other than the failed at least one of the plural circuits,

the flow-rate monitor part discards packets of the priority class if a total flow rate of packets of the trial class and packets of the priority class exceeds the priority-class band capacity in the at least one of circuits other than the failed at least one of the plural circuits, and

the flow-rate monitor part discards packets of the trial class if a total flow rate of packets of the trial class and packets of the priority class exceeds the trial-class band capacity in the at least one of circuits other than the failed at least one of the plural circuits.

83. (New) A program installed in a packet communication system including:

a first terminal apparatus that sends packets of a trial class or a priority class;

a second terminal apparatus that receives packets of the trial class or the priority class;

a first packet transfer apparatus that is connected to the first terminal apparatus and first ends of plural circuits and transfers packets of the trial class or the priority class from the first terminal apparatus to at least one of the plural circuits;

a second packet transfer apparatus that is connected to the second terminal apparatus and second ends of the plural circuits and transfers packets of the trial class or the priority class from the at least one of the plural circuits to the second terminal apparatus;

a storage part that prestores a trial-class band capacity not to discard packets of the trial class and a priority-class band capacity not to discard packets of the priority class; and

a flow-rate monitor part that monitors a total flow rate of packets of the trial class and packets of the priority class in each of the plural circuits,

the program making the packet communication system execute:

in a case where the at least one of the plural circuits has failed and a flow of packets of the priority class in the failed at least one of the plural circuits is switched to at least one of circuits other than the failed at least one of the plural circuits,

a procedure of transferring packets of the priority class through the at least one of circuits other than the failed at least one of the plural circuits, without estimating whether or not the communication quality of packets of the trial class is sufficient in the at least one of circuits other than the failed at least one of the plural circuits, using the first packet transfer apparatus;

a procedure of discarding packets of the priority class if a total flow rate of packets of the trial class and packets of the priority class exceeds the priority-class band capacity in the at least one of circuits other than the failed at least one of the plural circuits, using the flow-rate monitor part; and

a procedure of discarding packets of the trial class if a total flow rate of packets of the trial class and packets of the priority class exceeds the trial-class band capacity in the at least one of circuits other than the failed at least one of the plural circuits, using the flow-rate monitor part.

84. (New) A packet communication method used in a packet communication system including:

a first terminal apparatus that sends packets of a trial class or a priority class;

a second terminal apparatus that receives packets of the trial class or the priority class;

a first packet transfer apparatus that is connected to the first terminal apparatus and a first pass and transfers packets of the trial class or the priority class from the first terminal apparatus to the first pass;

a second packet transfer apparatus that is connected to the first pass and a second pass and transfers packets of the trial class or the priority class from the first pass to the second pass;

a third packet transfer apparatus that is connected to the second terminal apparatus and the second pass and transfers packets of the trial class or the priority class from the second pass to the second terminal apparatus;

a storage part that prestores a trial-class band capacity not to discard packets of the trial class and a priority-class band capacity not to discard packets of the priority class; and

a flow-rate monitor part that monitors a total flow rate of packets of the trial class and packets of the priority class in each of the first pass and the second pass,

the packet communication method comprising:

in a case where a flow of packets of the priority class in the first pass is switched to the second pass due to handover,

transferring packets of the priority class through the second pass, without estimating whether or not the communication quality of packets of the trial class is sufficient in the second pass, using the second packet transfer apparatus;

discarding packets of the priority class if a total flow rate of packets of the trial class and packets of the priority class exceeds the priority-class band capacity in the second pass, using the flow-rate monitor part; and

discarding packets of the trial class if a total flow rate of packets of the trial class and packets of the priority class exceeds the trial-class band capacity in the second pass, using the flow-rate monitor part.

85. (New) A packet communication system including:

a first terminal apparatus that sends packets of a trial class or a priority class;

a second terminal apparatus that receives packets of the trial class or the priority class;

a first packet transfer apparatus that is connected to the first terminal apparatus and a first pass and transfers packets of the trial class or the priority class from the first terminal apparatus to the first pass;

a second packet transfer apparatus that is connected to the first pass and a second pass and transfers packets of the trial class or the priority class from the first pass to the second pass;

a third packet transfer apparatus that is connected to the second terminal apparatus and the second pass and transfers packets of the trial class or the priority class from the second pass to the second terminal apparatus;

a storage part that prestores a trial-class band capacity not to discard packets of the trial class and a priority-class band capacity not to discard packets of the priority class; and

a flow-rate monitor part that monitors a total flow rate of packets of the trial class and packets of the priority class in each of the first pass and the second pass,

wherein in a case where a flow of packets of the priority class in the first pass is switched to the second pass due to handover,

the second packet transfer apparatus transfers packets of the priority class through the second pass, without estimating whether or not the communication quality of packets of the trial class is sufficient in the second pass,

the flow-rate monitor part discards packets of the priority class if a total flow rate of packets of the trial class and packets of the priority class exceeds the priority-class band capacity in the second pass, and

the flow-rate monitor part discards packets of the trial class if a total flow rate of packets of the trial class and packets of the priority class exceeds the trial-class band capacity in the second pass.

86. (New) A program installed in a packet communication system including:
a first terminal apparatus that sends packets of a trial class or a priority class;
a second terminal apparatus that receives packets of the trial class or the priority class;

a first packet transfer apparatus that is connected to the first terminal apparatus and a first pass and transfers packets of the trial class or the priority class from the first terminal apparatus to the first pass;

a second packet transfer apparatus that is connected to the first pass and a second pass and transfers packets of the trial class or the priority class from the first pass to the second pass;

a third packet transfer apparatus that is connected to the second terminal apparatus and the second pass and transfers packets of the trial class or the priority class from the second pass to the second terminal apparatus,

a storage part that prestores a trial-class band capacity not to discard packets of the trial class and a priority-class band capacity not to discard packets of the priority class; and

a flow-rate monitor part that monitors a total flow rate of packets of the trial class and packets of the priority class in each of the first pass and the second pass,

the program making the packet communication system execute:

in a case where a flow of packets of the priority class in the first pass is switched to the second pass due to handover,

a procedure of transferring packets of the priority class through the second pass, without estimating whether or not the communication quality of packets of the trial class is sufficient in the second pass, using the second packet transfer apparatus;

a procedure of discarding packets of the priority class if a total flow rate of packets of the trial class and packets of the priority class exceeds the priority-class band capacity in the second pass, using the flow-rate monitor part; and

a procedure of discarding packets of the trial class if a total flow rate of packets of the trial class and packets of the priority class exceeds the trial-class band capacity in the second pass, using the flow-rate monitor part.